

Tune-Up Your Water System!

as spring begins, operators should assess how well their systems survived the cold weather months. Any broken water mains caused by freezing? How about frozen lines? The long periods of cold weather with a lot of snow cover this past winter had great potential to cause freezing problems with water distribution systems. Now would be an excellent time to perform a leakage test. Don't wait for the leaks to surface; take some simple,



pro-active steps to determine the integrity of your piping system. Read your water meters and compare your present meter readings with those from past years. A substantial increase in

water usage could indicate that your water system has sprung a leak!

Another simple step is to check your water system's water usage during the early morning hours. Inform your customers not to use any water between midnight and 5 a.m. on a particular day. Then check the water usage during this period by noting the meter readings or any change in the water level in your storage tank(s) with the supply sources turned off. If there is any significant system demand, this can be attributed to a leak.

Now is the time to locate leaks and make repairs before you experience other related problems such as: wells going dry, pumps needing repair or simply wearing out, low water pressures, etc. Contact someone with leak detection equipment (possibly NHRWA or a larger water system in your area) and locate the problem areas so that repairs can be made before the summer arrives and daily water usage increases.

In addition to finding leaks, do you know where all of your water system's gate valves and service connection shut-offs are located? Having someone on-site with leak detection and other equipment is a good opportunity to locate and plainly mark these valves. Finding them before an emergency occurs is an excellent pro-active step. In the same light, if you are making repairs and have excavating equipment on-site this is a good time to install additional needed gate valves, etc.

If water conservation or pipe repairs are not on your agenda this spring, what about reducing your water system's operating costs? For example, what is the air/water ratio that you maintain in your hydropneumatic water storage tank? Is it approximately 50/50? This is usually the most efficient operating setting to balance the pump running times and the water system's pressure. Another way to lower operating costs is to check the amperage usage on your water pumps. Inefficient pumps need and use more power to pump the same amount of water. Pumps using a high amount of electricity should be repaired or even replaced. It's your money!

Yet another way to save money is to reduce the water system's sampling schedule requirements, if possible. Does your system have a wellhead protection program (WHPP)? If the answer is no, then your source(s) could be vulnerable to contamination. If you are eligible for a WHPP yet haven't applied, you could be sampling more

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Emergence of Perchlorate as a Potential Chemical of Concern

erchlorate (ClO₄-) has emerged as a chemical of L concern in the United States over the last ten years. A compound of chlorine and oxygen, perchlorate has been widely used in solid fuels for rockets and missiles, as well as in explosives, fireworks, road flares, air-bag inflation systems, lubricating oils, nuclear reactors, and electronic tubes. Perchlorate is also used in tanning and leather finishing, electroplating, aluminum refining, rubber manufacture, and in paint and enamel production. It also occurs naturally in certain types of fertilizers imported from Chile.

For decades, perchlorate was not considered to be a significant risk to human health or the environment, and the detection limit for laboratory testing was not lower than 400 parts per billion (ppb). However, recent research has found that perchlorate can disrupt the body's synthesis of thyroid hormones, which are essential for metabolism and normal growth and development. The impacts are greatest to pregnant women, developing fetuses, infants, children, and individuals who have low levels of thyroid hormones. Some states have already adopted drinking water standards or advisory levels from 1 ppb to 18 ppb. The USEPA has placed perchlorate on the contaminant candidate list and it is expected to develop a perchlorate standard within the next few years. DES's Risk Assessment Group is also studying the chemical to see if a standard is warranted.

Most public water systems in New Hampshire have never sampled for perchlorate. Exceptions are systems that sampled in accordance with the federal Unregulated Contaminants Monitoring Rule (UCMR) which applies to a few small systems and all large systems serving more than 10,000 people. However, the systems that completed UCMR sampling were only required to use an analytical technique with a 4 ppb detection limit. In New Hampshire, this sampling (at the entry point to the distribution system) did not detect perchlorate in any water system. Two percent of the water systems tested nationwide in accordance with the UCMR, did detect perchlorate.

In 2004, a statewide study involving non-transient and community water supplies in Massachusetts, with a detection limit of 1.0 ppb, detected perchlorate in eight out of 692 systems. The study also noted that none of the presumed sources of perchlorate implicated military or aerospace activities.

During 2005, DES plans to assess the potential occurrence of perchlorate in New Hampshire drinking water supplies. Sampling will initially occur at water supplies near areas where rock blasting has occurred or fireworks have been discharged, and near facilities known to use perchlorate in their operations.

The study will employ a method with a detection limit of 0.35 ppb. As of February, DES had collected water samples from six public water supply sources and found perchlorate at concentrations of 0.35 ppb to 0.7 ppb in two of the sources. DES will use the results of the study, along with the results of a study currently being completed in Massachusetts, to identify and promote source water protection measures to prevent perchlorate contamination of drinking water.

Lastly, DES is encouraging applicants for new community water sources to include perchlorate in the water quality testing that is completed during the new source development process. DES also encourages systems with water supplies near potential sources of perchlorate to test for the compound. The cost of a low-level perchlorate analysis is approximately \$150.

For more information on perchlorate, including a list of laboratories that can complete a low-level analysis, please contact Brandon Kernen at (603) 271-0660 or bkernen@des.state.nh.us.

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Radionuclide Rule Update

E PA promulgated the final National Primary Drinking Water Rule for Radionuclides in December 2000. New state rules with similar requirements were adopted in 2004. The new rules require ALL community public water systems to collect four consecutive quarterly samples (to detect seasonal variation) for the three radionuclides described below before the end of 2007. To accomplish this, in 2003 WSEB established new master sampling schedules for all systems. Systems were scheduled for radionuclides monitoring for a specific year by selecting the systems with the highest historical values and placing them in the earlier years and distributing the remaining systems evenly through 2007. Subsequent monitoring requirements will be based on the running annual average of those results as compared to the table

found in New Hampshire Administrative Rule Env-Ws 324.10. Subsequent sampling times range from quarterly to every nineth year.

The MCLs for the radionuclides are as follows. For compliance gross alpha (analytical gross alpha minus uranium), the MCL is 15 pCi/L. Combined radium 226 and 228 cannot exceed 5 pCi/L and uranium (mass) cannot exceed the MCL of 30 ug/L (20 pCi/L).

In 2004, 130 systems took advantage of the grandfathering option with this new rule. This allowed systems with very low levels of radionuclides to forgo the quarterly sampling if historical results met certain criteria. While the grandfathering option is no longer available, there is still a way to receive a reduction in sampling. If your first two quarters show results that are below detection limit (BDL), as listed below, you may request in writing that the sam-

pling requirements for the final two quarters be dismissed. The detection limits are as follows: compliance gross alpha = 3 pCi/L; radium 226 and 228 = 1 pCi/L; and uranium = 1 ug/L. Your request must include the system name, EPA number, and summary of results. For more information please contact Selina Makofsky at (603)271-4109 or at smakofsky@des.state.nh.us.

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than you have to. A DES approved WHPP minimizes the water system's vulnerability to man-made contaminants. This helps the system avoid the prospect of having to treat or replace a contaminated source and permits DES to reduce the water system's chemical sampling requirements for VOCs and/or SOCs. For more information and/or questions about this program please contact Johnna McKenna at (603) 271-7017 or jmckenna@des.state.nh.us.

Other potential reductions in sampling costs can be obtained by reducing the required number of yearly bacteria tests. If your water system has had at least one year of acceptable bacteria tests, does not chlorinate, and a sanitary survey confirms the safety of the water system and its sources your water system can request a frequency reduction in yearly bacterial samples. If you have any questions regarding bacterial monitoring, please contact Barbara Davis at (603) 271-2542 or bdavis@des.state.nh.us.

So put the snow removal equipment away until next year and take advantage of the coming spring to make needed water system repairs or plan to reduce your water system's operating costs.

Changes at Nonprofit Assistance Providers

Northeast Rural Water Association and the Rural Housing Improvement, Inc. have been helping public water systems in New Hampshire for many years. While their original



core missions remain the same, both groups have recently undergone organizational changes that will improve their ability to offer assistance to water systems throughout New Hampshire.

Northeast Rural Water Association has reorganized. New Hampshire is now served by New Hampshire Rural Water Association (NHRWA). NHRWA has received additional funding resulting in expanded staff dedicated to providing training and technical assistance to small water and wastewater systems. For more information on NHRWA, please visit www.nhruralwater.org or contact them at (800)

556-3792 or nhrwa@nhruralwater.org.

Rural Housing Improvement has also reorganized. Rural Housing Improvement is now



called RCAP Solutions and they have moved to a new office. RCAP's main focus is still on small community water system planning and development. For more information on RCAP, please visit www.rcapsolutions.org or contact them at (800) 488-1969 or info@rcapsolutions.org.

These organizations receive state and federal funding to provide free services to assist small public water systems in supplying safe and reliable drinking water to their customers. Please take advantage of their services.

Seminars for Small System Operators

This June, DES and New Hampshire Rural Water Association (NHRWA) are going on the road again to offer continuing education seminars for grade IA operators. The seminars are conducted as informal discussions and cover topics important to very small water systems. Participants will learn from their peers, as well as from NHRWA and DES staff.

Grade IA operators generally operate their systems on a part-time basis and have difficulty attending classes held during the day or at a central location. These seminars have been developed to provide IA operators with training on topics pertinent for them and at times and locations convenient to them. These evening seminars are held annually in eight different locations throughout the state. Four seminars are in June and the other four are in October. Each seminar is worth 2.5 training contact hours. This allows grade IA operators to attend one seminar a year, specifically for and convenient to them. If they do this, operators will have the five hours they need to renew their certifications each renewal cycle (operators with a higher certification grade, I - IV, cannot use these seminars as credit for renewal).

The June seminars are scheduled from 4:30 to 7:00 p.m. at the Newfields Town Hall on June 7; the Littleton Community House Annex on June 9; the Wolfeboro Library on June 14; and the Peterborough Townhouse on June 15. The October seminars are not scheduled yet, but they will be held in Conway, Plymouth, Derry, and a site to be determined. Preregistration is required. Watch your mail for a flyer from NHRWA to register or contact NHRWA at (800) 556-3792. The cost to attend is \$10.

Join us! This is a great opportunity to get answers to any questions you may have and a chance to meet with other small water system operators in your area.

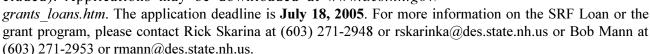
Since the last issue of Supply Lines, there have been numerous staff changes. Below is a listing of the current staff members along with a brief description of their responsibilities and a phone number. If the staff member is new to the Bureau or if they have changed positions their names are in bold print.

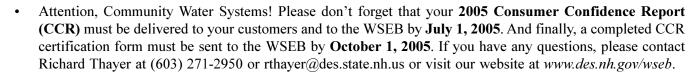
Water Supply Engineering Bureau

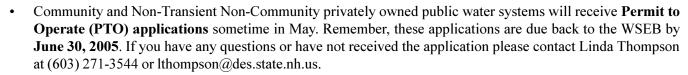
Name 271-XXXX Responsibilities			
Pillsbury, Sarah	1168	Administrator	
Drake, Kathy	2513	Support staff	
Murray, Jane	3139	Support staff	
Lucey, Bernie	2952	Chief Engineer: radon, uranium, and arsenic issues; private well strategy; homeowner well problems	
		Monitoring & Enforcement Section	
Makofsky, Selina	4109	Section Manager: radionuclides	
Bailey, Anne	0672	Bacteria - enforcement issues	
Davis, Barbara (Thoits)	2542	Bacteria & youth camps	
Gourley, Allyson	0655	Chemical Program Manager	
Kugel, Kelley	6703	Chemical - schedules, violations, & notices	
Leach, Alan	2854	Enforcement issues	
Madore, Tricia	3907	Chemical - schedules & results	
McNaughten, Betsey	0659	Chemical - enforcement issues	
Sonderegger, Debra	2862	Rulemaking	
Presby, Becky	2516	Lead & copper	
Small Water Systems Section			
Gill, Jim	2949	Section Manager: design review, technical assistance	
Clairmont, Mary	6603	Small system surveyor (east)	
Jackson, Art	2513	Camp inspector	
Pelham, Wade	3906	Small system surveyor (west)	
Riel, Kevin	2539	Small system surveyor (north)	
		Municipal Systems Section	
Mann, Bob	2953	Section Manager: surveyor (east), surface water, design review, grants	
Mackey, Chip	2410	Operator certification	
Skarinka, Rick	2948	Surveyor (west) and SRF loans	
Thayer, Richard	2950	Lead & copper treatment, consumer confidence reports, capacity development	
Source Water Protection Section Keyner Brandon - 0660 Section Manager Large groundwater (CM) Withdrawale CM Discharge Demaits			
Kernen, Brandon	0660	Section Manager: Large groundwater (GW) Withdrawals, GW Discharge Permits	
Brock, Jessica	4071	Project WET (Water Education for Teachers), education, publications	
Gauthier, Benjamin	0657	Chemical monitoring waivers & GW discharge support	
Locker, Mitch	2958	GW discharge permits & holding tank registrations	
McKenna, Johnna	7017	Security, emergency plans, GIS/maps, chemical monitoring waivers, grants	
McManus, Karla	2291	Water Supply Land Grants, land conservation, rulemaking	
Morgan, Diana	2947	Community well siting reviews, BMP, bottled water, water conservation	
Nowack, Tim	8866	Large groundwater withdrawals, bottled water	
Rigrod, Pierce	0688	SWP outreach and technical assistance	
Susca, Paul	7061	SWP outreach and technical assistance, SWP coordinator, watershed protection	
Data Management Section			
Cullerot, Laurie	2954	Section Mgr: Permit To Operate (PTO), water quality freedom of information requests	
Thompson, Linda	3544	App/Lic for PTO, federal reporting, PWS verification, & real estate inquiries	
Schofield, Rick	1974	Water Well Program Section Section Manager: Water Well Board, private wells, well contractors	
Al-Egaily, Genevieve	1974	Water well data entry, private well inventory	
Al-Egally, Gellevieve	1913	· ·	
Hall, Bill	2998	NH Environmental Laboratory Accreditation Program Section Section Manager	

Upcoming Deadlines

- The FY 2005 Drinking Water State Revolving Loan Fund (DWSRF) for infrastructure projects and source water protection land acquisition currently has pre-applications available. If you would like a pre-application, please contact Kathy Drake at (603) 271-2513 or visit www.des.nh.gov/grants loans.htm. The pre-application deadline is May 18, 2005.
- The Public Water System Interconnection and Groundwater Investigation (SIGI) grants provides 25 percent reimbursement of costs for public water supply interconnections and well contamination studies (MtBE excluded). Applications may be downloaded at www.des.nh.gov/







New Hampshire Wells Getting Deeper

On January 1, 1984 the New Hampshire Water Well Board was created by state law, RSA 482-B, to license water well contractors and pump installers, and to collect records of all new well construction. After over 20 years of reporting, the New Hampshire well inventory, managed by the NH Geological Survey, reveals a trend toward deep wells in recent

years. Of the 92,185 bedrock wells constructed since reporting began, 1,010 wells were drilled to a depth greater than 1,000 feet, and two wells were drilled to a depth greater than 2,000 feet. From 1984 through 1993, 0.65 percent of the wells were deeper than 1,000 feet. That percentage more than doubled to 1.5 percent during the period from 1994 to the present. The deepest well reported was constructed in Derry and was drilled to 2,120 feet with a reported yield of two gallons per minute (gpm).

The majority of deep wells were drilled in southern New Hampshire towns including Bedford, Brookline, Derry, Pelham, and Windham, each of which had more than 40 wells with depths of 1,000 feet or greater. Moultonborough also had its fair share of deep wells, numbering 45 wells with depths 1,000 feet or greater. The deep well jackpot is found in Windham, where there were 114 wells with depths ranging from 1,000 to 2,020 feet. Interestingly, 10 of those wells had reported yields between 50 and 100 gpm, and one 1,506-foot well had a reported yield of 200 gpm!

For questions about the New Hampshire water well program please contact Rick Schofield at (603)271-1974 or rschofield@des.state.nh.us.



Arsenic Update

n January 3, 2004, the new arsenic standard of 0.010 mg/L became effective for all community and non-transient, non-community public water systems. Federal and state rules give existing public water systems until January 22, 2006 to comply with this new standard. New water systems beginning operation after January 22, 2004, are required to meet the new standard. (Until the 2006 date, existing systems must comply with the currently enforceable maximum contaminant level (MCL) of 0.05 mg/L.)

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To ensure that all public water systems are aware of these requirements, the WSEB began notifying systems of their increased monitoring and/or compliance requirements in the first quarter of 2004. Over the past year, approximately 100 systems with levels of 0.005 mg/L and above (one half of the new MCL) began quarterly monitoring and were notified of the January 22, 2006 compliance date. Notices of Violations were also issued to at least 20 systems whose values exceeded the currently enforceable standard of 0.050 mg/L. As sample results come in, these letters will continue to be issued to those systems not previously notified.

In addition, in December of 2004, WSEB mailed out reminder letters to 169 community and non-transient, non-community public water systems that had at least one occurrence of arsenic at or above 0.010 mg/L since 2002. The purpose of this letter was to ensure that all affected public water systems were informed of this important upcoming compliance date so that they may plan accordingly.

Failure to meet the MCL of 0.010 mg/L by the January 22, 2006 date will result in enforcement action. Non-compliant water systems will be required to issue public notice of the violation to all consumers and provide alternate water until the MCL exceedence is corrected. An evaluation of your current arsenic level (as well as all water quality results) is strongly recommended.

Technical questions concerning the various arsenic treatment options can be addressed to Bernie Lucey at (603) 271-2952 or blucey@des.state.nh.us. Monitoring and/or enforcement questions can be addressed to Allyson Gourley at (603) 271-0655 or at agourley@des.state.nh.us.

Provide Your Chlorine Residual Data

o streamline analysis and contain costs, the DES Laboratory is requesting that water systems indicate whether their water samples are chlorinated and provide the chlorine residual result from a field measure-

ment when submitting bacteria samples to the state lab. Your field data will help the lab satisfy the NELAC sample receipt requirement and allow faster processing of samples.

NELAC, the laboratory accrediting authority, requires laboratories to establish and follow sample receipt protocols. For bacteria samples, this means that labs must check for chlorine residual in submitted samples. This activity adds time and expense to the analysis of bacteria samples. For more information or if you have any questions, please contact Rachel Rainey at (603) 271-8501 or rrainey@des.state.nh.us.

Water System Security Update



Tater systems across the state continue to increase security at their facilities by completing vulnerability assessments and emergency plans, and implementing security measures. This is important since there continue to be incidents across the country which proves that systems still need to be vigilant. Security should be part of a system's everyday operations. This philosophy can reduce a systems risk of incidents and can also increase staff safety. It is important to make sure staff are trained and that your system has policies on certain procedures such as passwords, visitors, deliveries, background checks, and incident response. Maintaining equipment, fixing existing problems, and "layering" security measures for your most critical assets are simple and inexpensive ways to increase security at your system. The Water Supply Engineering Bureau (WSEB) has been working to provide systems with the training and tools necessary to continue to protect public drinking water and meet new security needs. Listed below are some updates, upcoming events and information on water system security.

- Ninety-nine percent of community systems have submitted a copy of their required emergency plan (EP) to DES, and all of the community systems that were required to complete a vulnerability assessment under the Bioterrorism Act have met that requirement.
- WSEB and New England Water Works (NEWWA) held a free two-day Security Hardware workshop in March to assist community systems in implementing security hardware measures. The workshop assessed the pros and cons of various security hardware and their application to water systems.
- WSEB will be proposing a revision to the existing notification rule, Env-Ws 360.01 Notification of Impairment. This rule will require community systems to report any incidents to the WSEB within 24 hours. This

important change will allow the WSEB to assist systems during an emergency, track security incidences, watch for any trends in suspicious activity, and track security needs across the state. More information regarding this proposed change will be distributed as it becomes available.

- Later this year WSEB will send community systems an emergency contact information card to enable water system personnel to know who at DES to call during an emergency and when. There will also be room to include local emergency contact information.
- Local Source Water Protection Grants are available every year to implement source security measures. Applications for the grant program are distributed every fall. Systems can receive up to \$15,000 for source protection projects. Check out the website at www.des.nh.gov/dwspp/grants.htm.
- EPA will host community-based workshops this spring and summer. Workshops will be held in Keene, Laconia, Dover and possibly northern New Hampshrie. These workshops will bring together local first responders and water systems and will include a tabletop exercise. As soon as dates and locations are finalized, registration forms will be mailed and posted on the WSEB webpage.
- If you haven't signed up already, you are encouraged to subscribe to the Water Information Sharing and Analysis Center (WaterISAC) and/or Water Security Channel. The WaterISAC is the most comprehensive and up-to-the-minute online resource of security information for America's drinking water and wastewater utilities. It provides a unique link between the water sector and key federal agencies. It provides access to a wide array of tools and facts for analyzing incident reports, identifying and assessing threats, and taking corrective action. Systems can be quickly notified of the latest government alerts on water security and receive expert analysis about how a re-

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Drinking Water Operator Training Program is Bigger & Better!

New Hampshire drinking water operators are more qualified and better trained than ever before, thanks to the new comprehensive drinking water operator training program. The program offers more affordable high quality training, at more locations, more frequently, and the classes cover more topics than ever before. Most of the classes have been full and the feedback that we have received is that operators feel they are getting valuable knowledge and information from the courses. The attendees also expressed that taking these classes is time well spent.

Renewal Reminder

Operators are required to obtain training contact hours to renew their operator certification before the end of 2005. Grade IA operators must have five hours and all other grade operators must have 20 hours. Qualified training must have been taken during this renewal cycle (January 1, 2004 to December 31, 2005) for it to count. Whether you take a class from one of the state contractors or a class from somewhere else, remember to get a certificate of attendance. You will need it for your records. Don't wait until the last minute-get your hours now!

DES contracts with several organizations to provide the training, including New Hampshire Water Works Association (NHWWA), New England Water Works Association (NEWWA), New Hampshire Rural Water Association (NHRWA), RCAP Solutions, and Camp Dresser & McKee, Inc. (CDM). NHWWA offers a basic introductory course for operators of all but the smallest of water systems and holds the annual NH Drinking Water Expo, which offers free training sessions for all classes of operators. NEWWA conducts in-depth water treatment and distribution classes at the Franklin Training Facility. NHRWA, in partnership with DES, offers introductory and continuing education seminars for grade IA operators (see the related article on page 6). RCAP provides training and assistance to small public water systems to help them deal with the financial and managerial aspects of running a water system. CDM offers an intensive one-week course culminating in a voluntary water/wastewater maintenance technician certification for attendees that pass an exam.

The new training program is designed to give public water systems and their staff the training and information needed to efficiently operate water systems and protect public health while supplying reliable

water to customers. You should receive notices of training opportunities throughout the year. If you need more information about the training program, please contact Chip Mackey at (603) 271-2410 or hmackey@des.state.nh.us or visit the training calendar at www.des.nh.gov/wseb/calendar. See page 6 for information on seminars for small system operators.

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ported threat may impact their water system. To subscribe, visit www.waterisac.org. For those systems who have decided not to subscribe to the WaterISAC but would still like to receive water security alerts, the Water Security Channel is a free, rapid, email notification of water security alerts and other information issued by federal government agencies. To subscribe, visit www.watersc.org.

 The EPA Water Security website (www.epa.gov/safewater/security) is another great resource for security information. It offers many tools and guidance documents including a security product guide, research and technology information, emergency planning documents, and a list of training opportunities.

For more information, links and guidance documents, check out the WSEB Water System Security website at www.des.nh.gov/wseb/EmergencyPlanning/default.asp. For questions, assistance, or more information about any of the workshops or information mentioned above please contact Johnna McKenna at (603) 271-7017 or jmckenna@des.state.nh.us.



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